

ABSTRACT

A stainless steel separator having gas channels including grooves and projections for fuel cells. The separator has a composition including about 0.03 mass percent or less of carbon; about 0.03 mass percent or less of nitrogen, the total content of carbon and nitrogen being about 0.03 mass percent or less; about 16 mass percent to about 45 mass percent chromium; about 0.5 mass percent to about 3.0 mass percent molybdenum; and the balance being iron and incidental impurities. The separator has a contact resistance of about $100 \text{ m}\Omega \cdot \text{cm}^2$ or less. Preferably, the projections have an arithmetic average surface roughness R_a in the range of about 0.01 to about $1.0 \text{ }\mu\text{m}$ and a maximum height R_y in the range of about 0.01 to about $20 \text{ }\mu\text{m}$. The stainless steel separator preferably further includes about 0.001 to about 0.1 mass percent silver. A fuel cell including this separator exhibits a stable output voltage for a long period of time.